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Psoriasis in Childhood

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■ *Psoriasis beginning in childhood is more common in girls than in boys, and commonly other members of the patient's family also have the disease. When it begins in childhood, the course of the disease is generally more severe than when it begins in adult life. It is important to avoid therapy or trauma that will aggravate the course of the disease. Care should be taken to fully educate the psoriatic patient and his family.*

PSORIASIS IN CHILDHOOD is not uncommon. Study of the disease in a pediatric age group is important because of psychological problems, dangers inherent in treatment and alteration of the natural course of the disease by injury to the skin. This report of 268 cases of childhood psoriasis is based on observation of patients cared for at the Stanford-Palo Alto Hospital Outpatient Clinics and on information obtained from dermatologists who have cooperated in the psoriasis research program at Stanford. It deals with the natural history of psoriasis in children with respect to incidence, prognosis, and treatment.

Material

Data were gathered from one thousand persons with psoriasis. A comparison was made of psoriasis which begins in childhood with that which has its onset in adult life. The patients in whom psori-

asis began at age 15 or earlier will hereafter be referred to as the childhood group, and the remainder as the adult group. There are, of course, many of the childhood group who are now of adult age.

In the comparison between the two groups we have tabulated the sex, familial incidence, the incidence of the Koebner reaction* and the current involvement with psoriasis. The latter was estimated from the percentage involvement of the skin surface on a diagram of the human body provided to the patients and from physical examination by the physician.

Results

Of the one thousand persons whose case records were examined, 268 (27 per cent) reported the onset of psoriasis at or before the age of 15 (Chart 1). The median age of onset was 26.5 years.

There were twice as many girls (180) as boys (88). Analysis of data from 732 patients with psoriasis in whom lesions developed after age 15 revealed an incidence of 48 per cent in males and 52 per cent in females (Table 1).

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*Refers to the appearance, in psoriatic persons, of a lesion of psoriasis at the site of an injury to the skin.

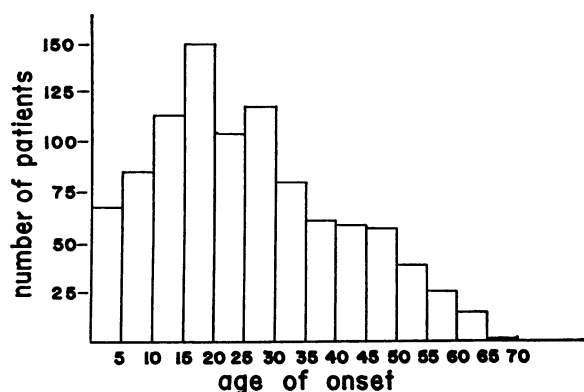


Chart 1.—Age of onset of psoriasis in 1,000 patients.

The familial incidence between the groups differed. Fifty-two per cent of the childhood group named relatives with psoriasis whereas only 30 per cent of the adult group knew of relatives with psoriasis. Parents, specifically, were named in 23 per cent of the childhood group and by 15 per cent of the adult group as having psoriasis.

The Koebner reaction was noted in 106 of the 268 patients who had early onset of psoriasis and in 292 of 732 of the adult group—an incidence of approximately 40 per cent in each group. The patients whose current body involvement with psoriasis was estimated were divided into four groups: 0 to 5 per cent represented *minimal* involvement, greater than 50 per cent represented *widespread* involvement, and there were two intervening groups. As noted in Table 3, there was a much higher proportion of minimal involvement in the adult group than in the childhood group. Table 3 also includes adults who had had psoriasis for at least ten years and was included to account for the possibility that the heavier involvement was a result of the childhood group carrying the disease for a greater number of years. Over half of this group is still minimally involved with psoriasis.

Statistical Analysis

The data in this study were analyzed to determine the significance of the findings. Table 1 and 2 had *chi square* values calculated in excess of

TABLE 1.—Sex Incidence in Childhood Psoriasis

	Childhood Group		Adult Group	
	No. of Patients	Per Cent	No. of Patients	Per Cent
Male	88	33	353	48
Female	180	67	379	52
Total.....	268	100	732	100

TABLE 2.—Familial Incidence in Childhood Psoriasis

	Childhood Group (268 Patients)		Adult Group (732 Patients)	
	Number	Per Cent	Number	Per Cent
Psoriasis in any relative	139	52	219	30
Psoriasis in a parent	62	23	112	15

6.64 and were therefore considered significant at the 1 per cent level.

The figures of the adult group compared with those of the childhood group of Table 3 were significant to the 1 per cent level as determined by the Wilcoxon Rank Test for ordered $2 \times C$ contingency tables.⁷ The *chi square* for this table was 2.75 and was therefore significant at the 5 per cent level.

The adult group compared with the childhood group in Table 3 by the Wilcoxon Rank Test showed a significance at the 5 per cent level and a *chi square* of 2.08—significant to the 10 per cent level.

Discussion

The preceding tables show a significant proportion of persons with psoriasis beginning at or before age 15, and that females are affected in a ratio of 2:1 over males. These figures are different from those of Lomholt¹¹ who found that 54 per cent of the patients in his study had onset of psoriasis before the age of 15 years; our data showed an incidence of 26 per cent in the same age group. Lomholt found the incidence almost equal between the sexes. However, his female group had a very prominent peak of onset between the ages of five and nine years. Sixty-two per cent of the females and 45 per cent of the males in his study had lesions of psoriasis before the age of 15. Thirty-two per cent of the females and 20 per cent

TABLE 3.—Current Body Involvement of Three Groups* of Psoriatic Patients

Per Cent of Body Covered	Childhood		Adult		†Adult (More Than 10 Years)	
	Number	Per Cent	Number	Per Cent	Number	Per Cent
0-5.....	42	38	215	60	140	53
6-15.....	27	24	78	15	46	17
16-40.....	27	24	85	17	55	20
More than 50..	16	14	36	7	34	9
	112		414		275	

*All patients are over 25 years of age.
†Psoriasis present at least 10 years.

of the males in our study had onset of psoriasis during this period. Other studies support these findings that show early onset proportionally greater in females than in males.^{2,13}

There are numerous references in the literature supporting the familial and hereditary patterns of psoriasis.^{1,10,11,13,14} Early works also refer to transmission of the disease from parents to children.^{8,9,12} The data in the present study also show psoriasis in a considerable proportion of members of the families of patients who have this disease. In this study the childhood group had a higher familial incidence than the adult group.

Patients seem to be more severely involved with

psoriasis in adult life if it begins in childhood (Table 3). As the number of patients examined in the study was large, this finding probably is valid. In this regard our findings support Lomholt, who stated that patients in whom psoriasis had begun at less than ten years of age were more subject to periodic major eruptions than were those who did not have onset of disease until after age 25.

Although the data in Table 3 imply that the



Figure 1.—Widespread disfiguring psoriasis in a 12-year-old.



Figure 2.—A six-year-old girl with heavy psoriatic crusts on abdomen and flanks.

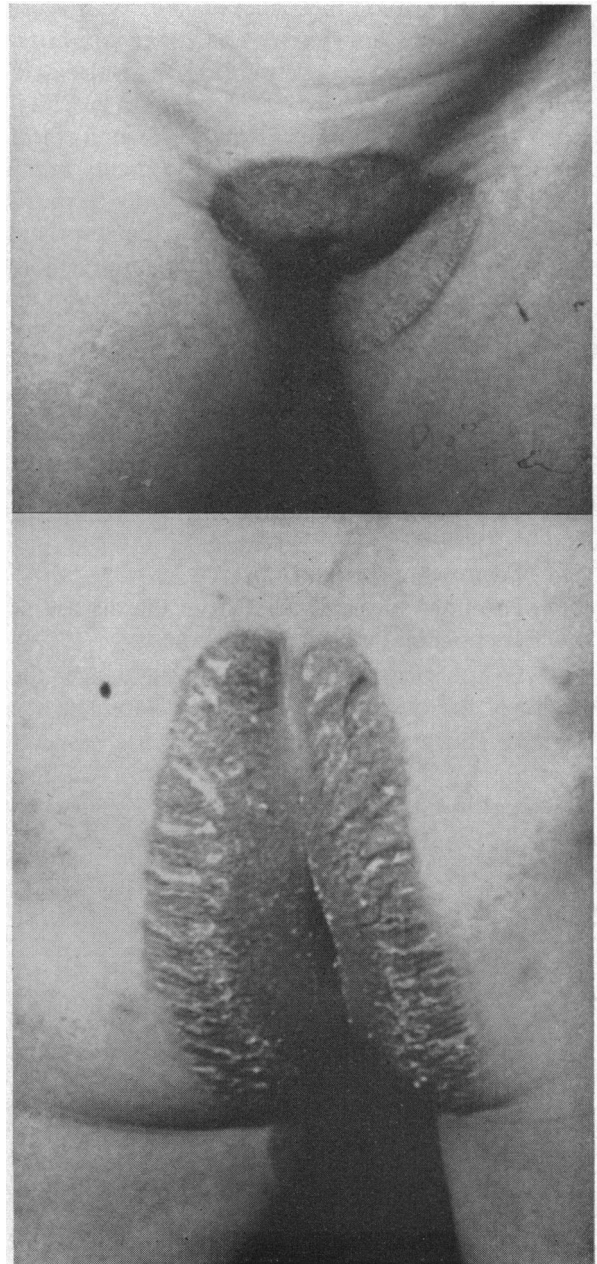


Figure 3.—Severe intertriginous psoriasis in a three-year-old child.

course of psoriasis is worse if the onset is early, it by no means is the rule for all children with psoriasis. We have often seen (and our present report reflects this) cases of early onset which remain relatively quiescent into adulthood. We have also seen one set of identical twins who had quite similar courses, while in another set the courses were widely disparate—mild in one and severe in the other.

As a rule, children do not have the permanent, thick, hyperkeratotic plaques of psoriasis that adults often have on their knees and elbows. More often the lesions are thinner and softer, are nummular and seem less permanent than those of adults. Also generalized erythroderma in childhood psoriasis is rare, as is the pustular form of the disease. Although these last statements imply that childhood skin may react differently to psoriasis than adult skin, our data show that psoriatic lesions do not develop at the site of injury more often in the childhood group than in adults. Our data does not take into account the various types of injury that occurred in both groups of patients, although knowing the kind of injury has been found to be of at least theoretical value.^{4,5}

Management

The objectives of treatment are:

- To preserve skin surfaces.
- To afford physical relief from the disease as much as possible with present methods.
- To use measures which do not endanger the health of the child or his future development.
- To educate patient and parents in all aspects



Figure 4.—Guttate psoriasis in identical twins in whom disease had similar course.

of the disease, with proper emphasis on the physical and psychological aspects.

In general the course of psoriasis in childhood is mild and, with infrequent exceptions, can be controlled with conservative therapy. An active program must be undertaken for the preservation of normal skin and for treatment of existing lesions. It is equally important that the parents of the patient completely understand the treatment and the rationale of its use. Certain facts should be brought to their attention: (1) Injury to the skin can result in more psoriasis (Koebner response); (2) psoriasis is a lifelong benign disease subject to natural remission in one-third of all cases; and (3) any therapy that is undertaken should be conservative, deliberate and cognizant of side reactions.

There are various kinds of damage to the skin that give rise to new psoriatic lesions. Bruises, abrasions and scratches all may result in new lesions, and this must be fully understood by the parents. Even rings, elastic undergarments or snug shoes can injure the skin enough to cause a reaction. Excessive exposure to solar rays also result in development of a lesion, although gradual exposure can be beneficial. Some drugs, such as sul-

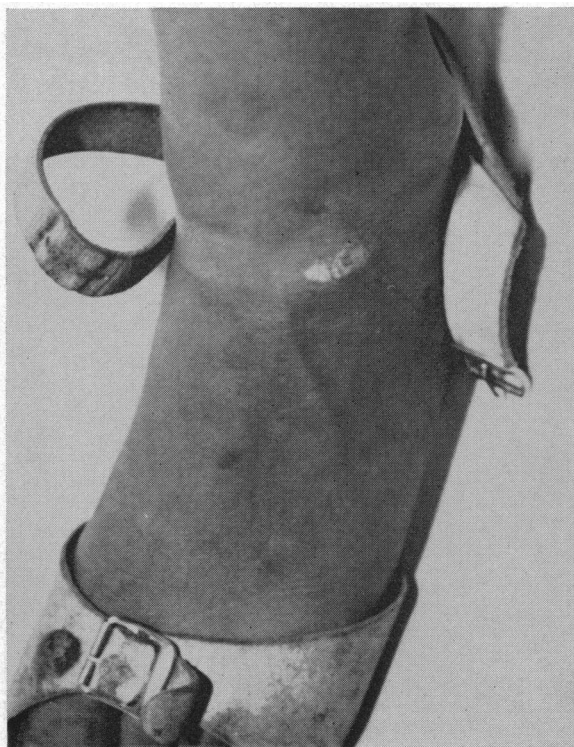


Figure 5.—An example of a new psoriatic lesion after trauma from normal apparel.

phonamides, phenothiazines and declomycin, may produce photosensitivity reactions which result in new lesions of psoriasis.

The approach to medications should be conservative. A burdensome program with unpleasant preparations invites rejection of therapy by the child, whereas a slower beginning with more acceptable medications can bring cooperation. It is important that the child learn day-to-day care, and in this a simple daily routine can be very effective. Soiling of clothes and furniture by messy ointments is a deterrent to conscientious therapy.

Often the lesions of psoriasis will respond to moderate therapy but be resistant to stronger methods. Therapy with ultraviolet light is a good example of simple and natural treatment. After instruction, a child can use an ultraviolet lamp to substitute for hours in the summer sun. Both the child and the parents must be warned of the hazards of overexposure.

Some of the methods of treatment known to be acceptable and effective for adults should not be used for children. Because of the possibility of inducing permanent skin changes, we eschew x-radiation in chronic benign childhood disease. Systemic corticosteroids, used in effective amounts cannot be continued long without interfering with normal growth of a child. Use of them is also accompanied by a generalized spread of psoriasis when the drug is discontinued.⁸ Similar problems may occur following the use of topically applied corticosteroids over large areas of skin, although limited use for localized lesions may be helpful. Recalcitrant plaques of psoriasis can often be reduced by applying corticosteroids and then covering the area with plastic wrap (*e.g.* Saran Wrap). This method is for limited areas, and the physician should be aware of possible striae formation.³

The use of antimetabolites in the treatment of psoriasis requires care and close supervision of the patient. We do not believe that they should be used in a pediatric age group, except perhaps in extraordinary circumstances.

Psychological Aspects

For children as well as for adults skin disease is repugnant. In adolescence, especially, beauty and handsomeness seem all-important. If psoriasis threatens the self-esteem of a child, it is the duty of the physician to provide necessary emotional support and understanding.

Knowledge of the natural history of psoriasis

provides the child with insight sufficient to maintain his self-esteem. And parents who are well informed and free of doubt can ease the concern of their friends and associates.

Widespread visible lesions of psoriasis may cause emotional problems, but once the problems are recognized they can be dealt with by the child and the family under the physician's guidance. Problems of great severity may necessitate psychiatric help or individual schooling. An artificial environment should be avoided if possible, however, and the child should be encouraged to participate in the ordinary activities of his age group. The parents, with the aid of the physician, can help the child make the adjustment to a lifelong problem.

Prognosis

When psoriasis begins in childhood there is reason to believe from our own studies and those of others¹¹ that it portends increased severity in adult life. This implies profound effects upon the patient's life and his decisions. As the child matures, he not only learns that psoriasis will always be an intimate part of his waking hours, but he also must recognize that there are certain occupations which are incompatible with the state of his skin. Ideally, work and play that inherently traumatize the body should be avoided (construction work, contact sports) but exposure to sunshine and engaging in physical activity should be encouraged. There are no ideal occupations, but some are better than others. A desk worker with psoriasis is probably better off than a carpenter with psoriasis who traumatizes his hands, arms and knees.

Since psoriasis is a lifelong disease, characterized by exacerbations and remissions, it is proper for those contemplating marriage to be fully apprised of the nature of this disease. Because of the familial pattern, marriage between two psoriatic persons should take place only with full awareness of the increased incidence of psoriasis in their offspring.

REFERENCES

1. Aschner, B., Curth, H. O., and Gross, P.: Genetic aspects of psoriasis, *Acta Genet.*, 7:197-204, 1957.
2. Bulkley, L. D.: The cure of psoriasis with a study of 500 cases of the disease, observed in private practice, *J.A.M.A.*, 47:1630-38, 1906.
3. Chernosky, M. E., and Knox, John M.: Atrophic striae after occlusive corticosteroid therapy, *Arch. Derm.*, 90:15-19, January 1964.
4. Eddy, Capt. D. D., and Farber, E. M.: Experi-

mental analyses of the isomorphic (Koebner) response in psoriasis, *Arch. Derm.*, 89:579-588, April 1964.

5. Farber, E. M., and Eddy, D. D.: The natural history of psoriasis, Vol. I, Proc. of the XII Internat. Cong. of Derm., Wash., D. C., September 1962.

6. Farber, E. M., and Peterson, J. B.: Variations in the natural history of psoriasis, *Calif. Med.*, 95:6-11, July 1961.

7. Goldstein, A.: *Biostatistics*, The Macmillan Co., New York, 1964, pp. 114-117.

8. Hyde, J.: *Diseases of the Skin*, Henry Lea's Son and Co., 1883, p. 200.

9. Kaposi, M.: *Diseases of the Skin*, William Wood and Co., New York, 1895, pp. 306-307.

10. Lerner, C.: Hereditary influences in psoriasis, *J. Invest. Derm.*, 3:347-356, 1940.

11. Lumholt, G.: Psoriasis, prevalence, spontaneous course and genetics, G.E.C., Gad, Copenhagen, 1963, pp. 31-36, 43-50, 98-106, 180-183.

12. Nelligan, J. M.: *A Practical Treatise on Diseases of the Skin*, 2nd Amer. ed., Blanchard and Lea, 1857, p. 178.

13. Steinberg, A. G., Becker, S. W., Jr., Fitzpatrick, T. B., and Kierland, R. R.: A genetic and statistical study of psoriasis, *Am. J. Human Genet.*, 3:267-281, 1951.

14. Ward, J. H., and Stephens, F. E.: Inheritance of psoriasis in a Utah kindred, *Arch. Derm.*, 84:589-596, 1961.

CORRECTION

An error appeared in the article "Protein-Losing Gastroenteropathy" which was printed in the September 1966, issue of CALIFORNIA MEDICINE.

On page 203, the sentence beginning four lines from the bottom of the right hand column should read: Though sodium chromate would tag red blood cells when incubated with whole blood, chromic chloride would effectively label albumin when incubated with plasma.⁵